

REMARKS

Claims 1-25 remain in this application and claim 19 has been amended. Reconsideration of this application in light of the following remarks is requested.

Rejection[s] under 35 U.S.C. § 102**Claim 1**

Claim 1 was rejected under 35 U.S.C. § 102(e) as being anticipated by Cole. This is respectfully traversed. The PTO provides in MPEP § 2131 that

"[t]o anticipate a claim, the reference must teach every element of the claim...."

Claim 1 recites:

providing an integrated circuit wafer containing a circuit die;

cutting through said integrated circuit wafer by performing a single, continuous cut around the perimeter of said circuit die to thereby singulate said circuit die.

Therefore, with respect to claim 1, to sustain this rejection the Cole patent must contain all of the above claimed elements of the claim. However, contrary to the examiner's position that all elements are disclosed in Cole, this reference does not disclose "cutting through said integrated circuit wafer by performing a *single, continuous* cut *around the perimeter* of said circuit die." (emphasis added) Cole is entirely devoid of such teaching. Cole does not teach performing a single cut. Cole also does not teach performing a single continuous cut. Cole further does not teach performing a single continuous cut around the perimeter of the circuit die. Although Cole teaches the use of a computer to control the cutting operation, it does not teach "cutting through said integrated circuit wafer by performing a single, continuous cut around the perimeter of said circuit die." Fig. 6 of the present Application clearly shows the cutting of an individual circuit die from the wafer by cutting around the perimeter of the die rather than down a column or row, as Cole suggests.

Therefore, the rejection is not supported by the Cole reference and should be withdrawn. Similarly rejected claim 2 depends from claim 1 and adds the limitation of non-rectangular perimeter. Claim 2 is therefore also allowable for the same reasons as set forth above.

Claim 9 was also rejected over Cole for the same reasons. Claim 9 adds to claim 1 the limitation of "said step of cutting through is performed using an electron beam or water jet." Cole teaches using a fluid jet to cut the dice and consistently describes using pressurized water with abrasives to cut the dice. Cole does not teach or suggest using an electron beam as claimed in claim 9. Therefore, claim 9 is also allowable.

Claim 19

Claim 19 was rejected under 35 U.S.C. § 102(b) as being anticipated by Sliwa. This is respectfully traversed. The PTO provides in MPEP § 2131 that

"[t]o anticipate a claim, the reference must teach every element of the claim...."

Amended claim 19 recites:

19. A method to singulate a circuit die from an integrated circuit wafer, said method comprising:
 providing an integrated circuit wafer containing a circuit die;
 providing a first cut partially cutting said integrated circuit wafer using a focused beam apparatus;
 providing a second cut cutting through said integrated circuit wafer using a wafer saw blade apparatus;
 wherein at least one of the first and second cut is performed by a single continuous cut around the perimeter of said circuit die.

Sliwa does not disclose, for example, "wherein at least one of the first and second cut is performed by a single continuous cut around the perimeter of said circuit die." Sliwa does not teach or suggest cutting the circuit die by using "a single continuous cut" in either one of the two cuts performed in Sliwa. Applicants respectfully submit that the language of the claim is clear and that the art of record does not meet the requirements of the law in teaching every element of the claim. Therefore, claim 19 is allowable.

Rejections Under 35 U.S.C. §103

Claim 11

Claim 11 recites:

11. A method to singulate a circuit die from an integrated circuit wafer, said method comprising:

providing an integrated circuit wafer containing a circuit die;

cutting through said integrated circuit wafer by performing a single, continuous cut around the perimeter of said circuit die to thereby singulate said circuit die and wherein said singulated circuit die comprises a non-rectangular perimeter;

fixably mounting said singulated circuit die to a package; and

coupling signal pins of said package to signals in said electronic circuit.

Claim 11 was rejected under 35 U.S.C. § 103 as being "unpatentable over Cole as above in view of the admitted prior art." Applicant traverses this rejection.

As the PTO recognizes in MPEP § 2142:

... The examiner bears the initial burden of factually supporting any prima facie conclusion of obviousness. If the examiner does not produce a prima facie case, the applicant is under no obligation to submit evidence of nonobviousness...

It is submitted that, in the present case, the examiner has not factually supported a prima facie case of obviousness.

It has already been established above that Cole does not teach "cutting through said integrated circuit wafer by performing a *single, continuous* cut *around the perimeter* of said circuit die to thereby singulate said circuit die." (emphasis added) Therefore, this rejection is based on a defective reference with respect to the required elements of the claim. Therefore, the Examiner's burden of factually supporting a *prima facie* case of obviousness has clearly not been met, and the rejection under 35 U.S.C. §103 should be withdrawn.

Claim 20

Claim 20 recites:

20. An integrated circuit device comprising:

a semiconductor substrate containing an electronic circuit wherein said semiconductor substrate has a non-rectangular perimeter; and

a package comprising:

a surface to fixably mount said semiconductor substrate;

a plurality of signal pins; and

a means of coupling said signal pins to signals in said electronic circuit.

Claim 20 was rejected under 35 U.S.C. § 103 as being "unpatentable over Cole as above in view of the admitted prior art." Applicant traverses this rejection.

As the PTO recognizes in MPEP § 2142:

... The examiner bears the initial burden of factually supporting any prima facie conclusion of obviousness. If the examiner does not produce a prima facie case, the applicant is under no obligation to submit evidence of nonobviousness...

It is submitted that, in the present case, the examiner has not factually supported a prima facie case of obviousness.

It has already been established above that Cole does not teach "cutting through said integrated circuit wafer by performing a single, continuous cut around the perimeter of said circuit die to thereby singulate said circuit die." Therefore, the Examiner's burden of factually supporting a *prima facie* case of obviousness has clearly not been met, and the rejection under 35 U.S.C. §103 should be withdrawn and claim 20 should therefore be deemed as allowable.

Dependent Claims

Claims 2-10 depend from claim 1 and cite additional limitations. Claims 2-10, rejected by the Examiner variably over Cole, Fu, "admitted prior art," and Takiar, are patentable for the same reasons as set forth above as relating to the patentability of claim 1.

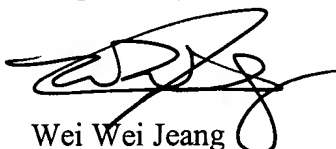
Claims 12-18 depend from claim 11 and provide for additional limitations therefor. These claims were also rejected over Cole, Fu, "admitted prior art," and Takiar. These claims are also patentable for the same reasons as set forth above as relating to claim 11.

Claims 21-25 depend from claim 1 and cite additional limitations. Claims 2-10, rejected by the Examiner variably over Cole, Fu, and "admitted prior art," are patentable for the same reasons as set forth above as relating to the patentability of claim 20.

Conclusion

It is clear from all of the foregoing that independent claims 1-25 are in condition for allowance. An early formal notice of allowance of claims 1-25 is respectfully requested.

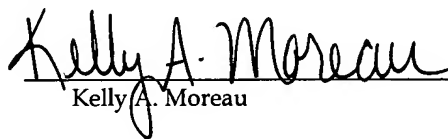
Respectfully submitted,



Wei Wei Jeang
Registration No. 33,305

Dated: June 16, 2005
HAYNES AND BOONE, LLP
901 Main Street, Suite 3100
Dallas, Texas 75202-3789
Telephone: 972-739-8631
Facsimile: 214/651-5940
Client Matter No.: 24061.523
R107929

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner For Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on June 16, 2005.


Kelly A. Moreau